



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,150	09/29/2003	Shinji Kinoshita	S004-5127	1914
40627	7590	11/19/2007		
ADAMS & WILKS 17 BATTERY PLACE SUITE 1231 NEW YORK, NY 10004			EXAMINER KRAUSE, JUSTIN MITCHELL	
			ART UNIT 3682	PAPER NUMBER
			MAIL DATE 11/19/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/674,150

Applicant(s)

KINOSHITA ET AL.

Examiner

Justin Krause

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 15, 2007 has been entered.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

The amendment filed October 15, 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The amendment to the specification recites that "As shown in figure 4, for applied loads in the range

from 1.5 to 5 tons the surface hardness was in the range 400-430 Hv." The scale on the hardness axis is graded in increments of 100, it cannot be determined from the drawing that the range ends at 430 from the scale as disclosed. Applicant's original disclosure re-inforces this issue, as the original specification states that the hardness at 5 tons was "about 430 Hv". It cannot be determined what the precise upper limit is from the original disclosure.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

Claims 1-11, and 13-24 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed limitation is that the surface hardness ranges from 400-430 Hv is not disclosed by the original disclosure and it is unclear if applicant had possession of this knowledge at the time the application was filed. The selection of 400 Hv arbitrarily narrows the range as originally disclosed between 380 and 430 Hv, and it cannot be determined from the original disclosure what the criticality of narrowing the range from the originally disclosed range is.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, and 13-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US Patent 5,407,281) in view of Schumacher (US Patent 3,912,503).

Chen discloses a hydrodynamic bearing comprising:

- a hollow member (generally 14, see fig 8) with an opening provided at at least one end,
- a rotating member (12) including a rotating portion inside the hollow portion so as to be rotatable relative to the hollow member and a shaft portion extending through said opening portion and arranged concentrically with an axis of rotation of said rotating portion
- fluid (32) interposed between the hollow member and the rotating member
- hydrodynamic pressure producing means (grooves 50, 22, 24) acting on the fluid between opposite surfaces of the hollow member and the rotating member
- a seal portion (60) disposed on an inner surface side of the opening portion
- the rotating member is made of stainless steel (col 6, line 66)
- the grooves on the thrust plate of the shaft are formed, and hardened by a plastic deformation process (coining, see col 7, line 13).

Chen does not disclose specific composition of the stainless steel used.

Schumacher teaches a stainless steel having chromium content between 12 and 16%, and manganese content between 6-10% for the purpose of providing good wear resistance and outstanding resistance to galling. (col 5, lines 43-45)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the stainless steel alloy as taught by Schumacher as the stainless steel material for the bearing shaft in Chen, the motivation would have been to provide good wear resistance and excellent resistance to galling.

The specification does not provide reason why the specified range of hardness is critical to the invention. It is within the routine skill of one in the art to experiment through routine methods to achieve desirable characteristics of a material best suited for the specific intended use of the final product. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen to harden the rotating member and/or the hollow member to a hardness of 400-430 Hv for the desired purpose of providing a durable device capable of withstanding prolonged use. The experimentation used to determine the hardness range is within the level of ordinary skill in the art and the results would have been predictable.

Regarding claim 2, the composition of Schumacher satisfies the requirements for carbon, phosphorus and sulfur. (see abstract)

Regarding claims 3 and 4, hydrodynamic pressure producing grooves are formed in the inner surface of the hollow portion (see Chen fig 8).

Regarding claims 5-7, the rotating portion is a disklike member and a shaft portion is connected to it perpendicularly to a disk surface (see Chen fig 8).

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Schumacher as applied to claims 1-5 above, and further in view of Kawawada et al (US Patent 6,176,618).

Chen, as modified by Schumacher, discloses all of the claimed subject matter as described above and states the bearing is for use in a computer disk drive, however does not explicitly state any motor structure.

Kawawada teaches a motor device having a hydrodynamic bearing, a rotor (60) connected with the shaft, a stator (70) connected with the hollow member and driving means for rotating the rotor (see col 7, lines 32-36), for the purpose of providing high speed rotational power.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen by incorporating the motor structure of Kawawada into the disk drive and bearing as a means or providing high speed rotational power to rotate the bearing and computer disk drive.

Response to Amendment

To this point applicant's response has been non-responsive with regard to the listing of references in the specification. In the interest of advancing prosecution, Applicant is given the opportunity to respond to this non-final rejection, however Applicant is advised that the next response **must** include an Information Disclosure

Application/Control Number:
10/674,150
Art Unit: 3682

Page 7

statement and copies of the foreign references cited in the specification, or Applicant's response will be held as non-responsive.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Krause whose telephone number is 571-272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK
JMK 11/13/07


Thomas R. Hannon
Primary Examiner